

# = BUILDING SAFETY = NEWS FROM THE INSPECTION DIVISION

*—The Building Safety Department is committed to advancing public safety in the built environment through collaboration and community partnership which results in safe, accessible, and healthy structures—*

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## WINTER ISSUE - INSPECTION DIVISION NEWSLETTER

Hopefully you got a chance to receive our inaugural Inspection Division Newsletter early last year. The feedback was wonderful, and we are now putting out the second issue. Thank you to all that commented on the first issue. We received many compliments and thanks for making this type of information available.

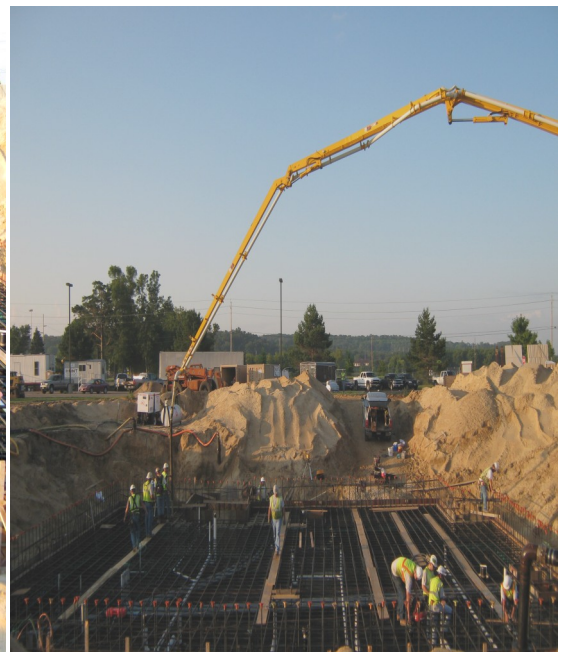
The challenge this summer was to get up to speed on four new State Codes. The State adopted a new Mechanical Code, Fuel Gas Code, Commercial Energy Code, and a Residential Energy Code that introduced us to Radon Control Methods. As we have become familiar with these codes, we have at-

tempted to get this information to the contractor community through informational sessions. We also hope to address many of these issues in this second edition of our newsletter. We hope this improves the process and makes it better for everyone involved.

We will distribute our newsletters through the builder and contractor organizations throughout the community, as well as our annual lumberyard meetings, the home show, and other related functions. We will also post the current newsletter on the Building Safety website at: [www.rochestermn.gov/departments/bldgsafety](http://www.rochestermn.gov/departments/bldgsafety)

**2010 LUMBERYARD MEETINGS DATES WILL BE:**  
**THURSDAY JAN 28; FEB 18;**  
**MAR 18; AND APR 15.**  
**LOCATIONS TO BE ANNOUNCED**

## 2117 CAMPUS DR S.E. BUILDING



Above is the foundation slab under a portion of the 2117 Building. The pour was about 500 cubic yards of concrete. The slab is 42" thick.

## REMINDERS

- Building Safety main number is **328-2600**
- Office hours are Monday-Friday 8:00am to 5:00pm
- The office will be closed **Jan.18, 2010; Feb. 15, 2010**
- Check inspection results 24/7 by going to **CITIZEN ACCESS** at: <https://ca.rochestermn.gov/CitizenAccess/>

## **RADON CONTROL METHODS AND THE 2009 ENERGY CODE**

The long awaited 2009 MN Energy Code became effective for projects applied for on or after June 1, 2009. One way to identify if the project you are working on must meet the 2009 code is by looking at the color of the inspection record card. If the card is orange it is subject to the requirements of the new 2009 MN Energy Code. Among other changes; one significant new requirement is the installation of a passive sub-slab depressurization system; better known as a radon control system.

This article will discuss the 2009 Energy Code requirements for the passive radon sub-slab depressurization system to be installed in all new one and two family attached and detached single family dwellings. The State Department of Labor and Industry has published an interruption that states radon mitigation systems are not required to be installed in additions and alterations to dwelling units.

The goal of these new provisions is to provide a passive sub-slab system to resist the entry of radon gas into the dwelling and prepare the building for a future active mitigation system.

### THE REDUCTION SYSTEM

A 4 inch layer of gas permeable material must be installed under any floor in contact with the soil. The code prescribes either a layer of sand overlain with a layer or strips of geo-textile matting approved for this use or a 4-inch layer of clean aggregate that will pass through a 2-inch sieve and not pass through a ¼-inch sieve; keep in mind nothing larger than ¾" aggregate can be placed around PVC underground sanitary piping. The code also allows alternative methods that can be proven to permit air movement and depressurization under the slab. Any alternative methods would need to be submitted to the Building Official with documentation showing how the system is capable of allowing depressurization under the slab. Approval may be granted on a case by case basis.

A soil gas retarder must be placed on the sub-slab layer and directly under the slab. The soil gas retarder is a 6-mil polyethylene or 3-mil cross laminated flexible sheeting or equivalent, with all laps at least 12 inches. The sheeting must extend to the foundation wall and be closely fit around pipes, wires or other floor penetrations. Under slab sealing of the soil gas retarder is not required.

A vent pipe must be stubbed out from the under floor layer either by connecting into the interior drain tile loop with a "T" fitting or by placing a "T" fitting in the sub slab layer with a 10' piece of perforated pipe connected to each side of the "T". The vent pipe can either be 3" or 4" gas tight pipe extending through the building, terminating out of the roof. The vent pipe is required to have a designated space of 24" around the vent pipe for a height of 36" in the location of the future fan installation to create an active system. In buildings with interior footings or other barriers, separate vent pipes can be combined to a single vent pipe to a single termination through the roof. The vent pipe must be labeled at each floor

Some other requirements that must be incorporated into the radon control system include all sump pit covers be sealed gas-tight, in masonry foundations, a course of block at or above finish grade must be solidly grouted, the floor slab and all penetrations through the slab must be sealed, and a power source must be provided to power a future fan for an active system. The power source must be installed in the attic or anticipated future fan location within six feet of the vent pipe.



**Soil Gas Retarder**



**Vent connected to interior drain tile loop**



**Minimum 12" lap in soil gas retarder**

## **APPROVED PLANS MUST BE ONSITE**

The sun is shining; the backhoe is ready; the inspector is onsite; but the permit package with approved plans is not onsite. The approved plans and inspection record card must be onsite for all inspections including foundation wall and prior to backfill. The plans need to be onsite during foundation construction so the inspector is able to verify building design; from footing sizes to type and location of foundation insulation. With the multitude of design variations it is imperative that plans be onsite at the time of inspection.

It is strongly suggested a weatherproof box be permanently placed onsite during construction to protect the approved plans from the weather and keep the plans from leaving the site in a sub-contractor's pick-up. Thank you to the general contractors who have already been following this practice. It will increase the job site organization for sub-contractors and inspectors.



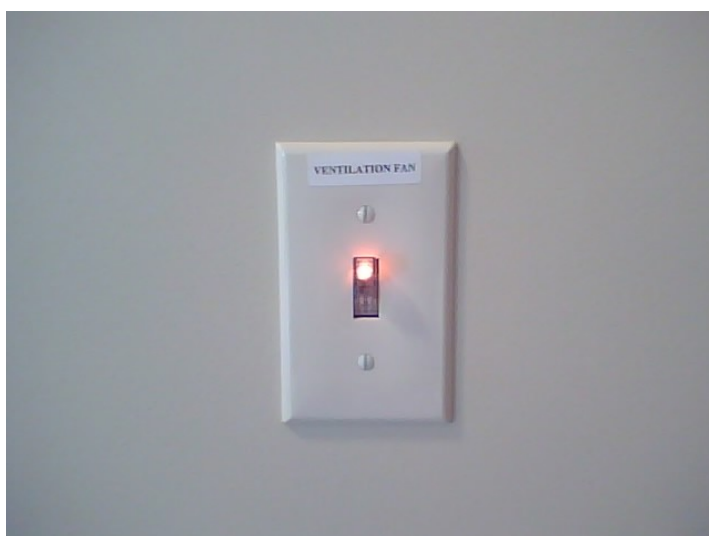


## 2009 Energy Code Ventilation Requirements and Submittal Forms

Ventilation submittal form



Mechanical system ventilation fan



Centrally lighted fan control switch

Building Safety has a new submission form available for ventilation, makeup and combustion air that reflects the requirements of the newly adopted 2009 Mechanical and Energy Codes. This form must be submitted with mechanical permits for new construction. The 2009 Energy Code mechanical ventilation form and an example with instructions are available at Building Safety or follow the links at the end of this article.

The new energy and mechanical codes have extensive information and requirements for existing construction, particularly reduced envelope infiltration, additional ventilation loads; such as high CFM hoods, and additions. The new Energy Code has reduced the amount of ventilation required for continuous ventilation, added control requirements, and reduced the assumed envelope infiltration. In addition, there is recapture for existing dwellings that were constructed under the 2000 Energy Code that took effect April 15, 2000. A number of mechanical contractors have been using the software developed and distributed by CenterPoint Energy for mechanical and energy code compliance for ventilation and combustion air. This software has not been updated to reflect the changes in the 2009 Energy and Mechanical Codes and this software use will not comply with the 2009 Energy Code requirements.

The new forms conform to the general layout of the forms required for compliance with the 2000 Energy Code with the following exceptions. The infiltration rate is now .02 per square foot instead of .05 per square foot; the required continuous ventilation rate is half of the total required ventilation; and you must specify your controls and explain how they operate. The **control section** of this form must provide adequate information for Building Safety to determine conformance with the Energy and Mechanical Code before installation, correct installation by the electrician, and onsite inspection by the electrical and mechanical inspectors at both rough in and final inspections. A copy of this form will be provided at the job site with the permit card. The sound rating of the fan used for continuous ventilation must not exceed 1.0 sone and any other fans required to meet the total ventilation requirements must not exceed 2.5 sones.

Proper installation of the ventilation system requires communication between the general contractor, HVAC contractor, and the electrician. Proper operation requires education of the homeowner and onsite documentation that includes proper operation and maintenance instructions and a warning regarding potential problems if the system is not operated and maintained. We have received complaints regarding installation of the indicator lights and switches. These switches and lights are only required for manually-operated ventilation systems. Heat or Energy Recovery Ventilators with automated controls do not require the switches or indicator lights in a conspicuous area.

The mechanical ventilation form and instructions are available at - <http://www.rochestermn.gov/departments/bldgsafety>

## LAWN IRRIGATION; FRIEND OR FOE

As we complete another “digging season”, we have looked back using *Gopher 1 Call* requests to determine if our irrigation policy is working. Unfortunately, it appears part of the program is not a success story.

First the good news; as more home builders have made irrigation systems part of the “normal” rough in for their customers, the plumbing contractors and builders have done an excellent job of sizing the water distribution system to accommodate the future system, and installing the appropriate “BACKFLOW PROTECTION DEVICE” to protect the potable water system. Our problems lie in the other type of irrigation installation, that being the irrigation system being installed with a remodel or a stand alone system. There are several problems that develop with these types of installations:

1. The water distribution system is improperly sized, which generally results in inadequate water pressure in the home.
2. In some cases, unqualified and unlicensed people are performing these plumbing connections and installations.
3. An improper backflow device or improperly installed devices may create the potential for high hazard contamination of the potable water system.

There are many add-on units available on the market like fertilizer or pesticide injectors that are being installed on irrigation systems which also create a very hazardous situation.

Please help us keep the potable water system safe for your customers and the citizens of Rochester. Irrigation systems are a nice addition to any home and are definitely user friendly. Their hazard lies with improper installation.

If you see an irrigation system being installed, please contact Building Safety so we can verify the proper permits have been issued, and the system is properly installed.

Contact people are:

Gale Mount-Chief Plumbing Inspector 507-328-2608

Gary Schick-Plumbing Inspector 507-328-2612

Tim Saari-Manager Inspection Services 507-328-2605

THANKS FOR YOUR ASSISTANCE



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## INSTALLATION OF SOLAR PHOTOVOLTAIC PANELS

The installations of solar photovoltaic (PV) systems are starting to show up in different parts of the Rochester Community. For that reason Rochester Building Safety is implementing a plan review process for PV installations. The process is specific to single family dwellings with roof mounted arrays that are about 10 Kw or less. Projects that differ from this type of installation may need to submit additional information.

The plan review form will require general information that includes completed permit applications and site plans. The site plans need to show the layout of the PV equipment at the permitted address. More detailed information is required for the structural and electrical portions of the PV installation.

The electrical plan review will be looking for PV equipment that is listed by an approved testing agency such as Underwriters Laboratory (UL). Copies of the manufacturer's specification sheets for all electrical equipment used for the PV installation will need to be supplied. A one-line diagram that shows the number of modules, wire sizes and insulation type, number of PV output circuits, raceway types, combiner box and size of DC overcurrent devices (if used), DC disconnect(s), inverter(s), AC disconnect(s), RPU required AC disconnect, AC service equipment, grounding electrode conductors for the AC and DC equipment, equipment grounding conductor and additional array electrode(s).

The applicant can create a format that supplies the required information or use a standardized process that may already be available elsewhere. An example would be: *Expedited Permit Process for PV System* available at [www.solarabcs.org/permitting](http://www.solarabcs.org/permitting)

A building permit will also be required in the installation of solar photovoltaic panels if they are attached to the structure. If PV system components will be supported by posts or other structures, this must also be detailed on submitted plans. The additional weight of the panels, additional snow drifting, or possible wind affect on the panels must be considered for the installation. Additional roof or wall bracing/reinforcing may be required. A plan showing existing support framing and any additional framing must be shown on the drawing.

This information will allow Building Safety to complete the plan review and issue permits in the shortest possible time frame. If questions arise or additional information is necessary this process allows issues to be resolved prior to start of the PV installation.



Roof installation